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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/689,854

10/13/2000

Ville Eerola

PM 274425

6648

2000010US/KA/ko

EXAMINER

FAN, CHIEH M

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 08/10/2004

7590 08/10/2004  
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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/689,854

Applicant(s)

EEROLA ET AL.

Examiner

Chieh M Fan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

In particular, the abstract should avoid using the word "disclosed".

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: proper antecedent basis for the limitation "the comparator is an XOR circuit" recited in claims 3, 6 and 9 is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Tran et al. (U.S. Patent No. 5,715,276).

Regarding claims 1, 2, 4, and 5, Tran et al. teaches a matched filter for implementing the correlation of input signals and reference signals, the matched filter comprising:

first means (134 in Fig. 6 or see 255, 256 in Fig. 16) for storing M samples taken from N received signals, wherein  $N \geq 2$ , and in which said M samples of the N input signals are stored one sample at a time at said N input signals' frequencies;

second means (131, 132 in Fig. 6 or Fig. 16) for storing K M-sample long reference signals, wherein  $K \geq 2$ ;

multiplexing means (133 in Fig. 6 or 133 and 233 in Fig. 16) for applying one of said N input signals and one of said M-sample long reference signals at a time from said first and second storage means to calculation means by applying alternately at least one combination of the N input signals and the M-sample long reference signals; and

calculation means (135, 136, 137, 139, and 147 in Fig. 6 or 235, 136, 137, 139, 147 in Fig. 16) for calculating the correlation time-dividedly for a combination of said N input signals and said M-sample long reference signals so that correlation results calculated from different signals appear at the output of the calculation means as a sequence, wherein the calculation comprises a comparator (135 in Fig. 6 or 235 in Fig. 16) and an adder means (136 in Fig. 6 or 16).

Regarding claims 3 and 6, the comparator comprises an XOR (see 135 in Fig. 6 or 235 in Fig. 16).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tran et al. (U.S. Patent No. 5,715,276) in view of the admitted prior art.

Regarding claims 7, 8, 12 and 13, Tran et al. teaches the claimed invention including a first storage means, a second storage means, a multiplexing means and a calculation means (see the rationale applied to claims 1 and 4 above), but does not specifically teach a controller for comparing the correlation results generated by the

matched filter with a predetermined threshold value to determine if the signal corresponding to the reference signal is found; i.e., the spreading code of the input signal is in phase with the reference signal.

However, the comparison of the correlation signal with a predetermined threshold to determine if the spreading code of the input signal is in phase with the reference signal is well known and widely used in the art. Such synchronization, i.e., in-phase, situation is explicitly required to properly demodulate (despread) the received signals. The admitted prior art as described in the background section of the present application clearly teaches a controller (3-20 in Fig. 3 of the present application) for comparing the correlation results generated by the matched filter with a predetermined threshold value to determine if the spreading code of the input signal is in phase with the reference signal. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to couple the correlation results of Tran to a threshold comparator to determine if the spreading code of the input signal is in phase with the reference signal, and thereby to ensure proper demodulation of the received signal.

Regarding claim 9, the comparator comprises an XOR (see 135 in Fig. 6 or 235 in Fig. 16).

Regarding claims 10 and 11, the admitted prior art further teaches a squaring means (3-14 and 3-16 in Fig. 3) for squaring the correlation results from the matched filters and a summing means (3-18) for summing the squared correlation results.

***Response to Arguments***

7. Applicant's arguments filed 5/18/04 have been fully considered but they are not persuasive.

The applicants argue that the Tran reference fails to teach "second means for storing K M-sample long reference signals, wherein  $K \geq 2$ ".

Examiner's response --- Tran teaches that the second means comprises a first plurality of registers (131 in Fig. 6 or Fig. 16) and a second plurality of registers (132 in Fig. 6 or Fig. 16). Therefore, Tran at least teaches a second means for storing two ( $K=2$ ) M-sample reference signals (see, especially Fig. 16, the first plurality of registers 131 stores a first reference signal REF1 and the second plurality of registers 132 stores a second reference signal REF2).

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M Fan whose telephone number is (703) 305-0198. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.



Chieh M Fan  
Primary Examiner  
Art Unit 2634

cmf  
August 2, 2004